

SEMICONDUCTOR DEVICE, ITS MANUFACTURING METHOD AND
SUBSTRATE FOR MANUFACTURING A SEMICONDUCTOR DEVICE

ABSTRACT OF THE DISCLOSURE

It is intended to provide a semiconductor device, its manufacturing method and substrate for manufacturing the semiconductor device which ensures that good cleavable surfaces be made stably in a semiconductor layer under precise control upon making edges of cleaves surfaces in the semiconductor layer stacked on a substrate even when the substrate is non-cleavable, difficult to cleave or different in cleavable orientation from the semiconductor layer. A semiconductor layer 2 made of III-V compound semiconductors is stacked to form a laser structure on a sapphire substrate 1. In selective locations other than the location of a ridge stripe portion 11 and a mesa portion 12 along a portion of a semiconductor layer 2 where a cavity edge 3 should be made, namely, in locations at opposite sides of the mesa portion 12, stripe-shaped cleavage-assist grooves 4 are made to extend in parallel to the (11-20)-oriented surface of the semiconductor layer 2, and the semiconductor layer 2 and the sapphire substrate 1 are cleaved from the cleavage-assist groove 4 to make the cavity edge 3 made up of the cleavable surface of the semiconductor layer 2.

Figure 2